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## Preparation of Dye Using Selected Local Materials

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### Abstract

Many plant species in Ogbomoso area of Oyo State, Nigeria produce juice that can permanently stick to clothing materials. A few of such plants were selected, namely Kola nitida, Cmelina arhorca, Prosopis africana, Tcctona grandis, Pteleopsis habeensis, Khaya scnegalensis, Azanza garkeana and Lamea liumilis. Juice from these plants were extracted and found to be useful dye agents for fabrics such as calico.

Dyeing with Pteleopsis habeensis produced a peach-coloured fabric; Khaya scnegalensis gave a pine-coloured fabric while a combination of the juices of Pteleopsis habeensis and Kola nitida gave an Ivory-coloured fabric. These locally available dyes, if improved upon would be a basis for the development of a dye-producing industry, small or large scale that may also assist in alleviating poverty in Nigeria.

**Key words** - Calico fabrics, Dyestuffs, Muslin cloth, Dye extraction.

### Introduction:

Colour brings out beauty in all things. Colours are obtainable from synthetics and natural materials. Synthetic dyes are costly hence the need to shift attention to the use of naturally and locally available source of dyes. This work is intended to explore the possibility of extracting useful dye stuffs from plant materials that are found within the local environment of Ogbomoso.

Robinson (1972) highlighted the important functions of colour as allowing for greater details and addition of interests in increasing potentialities, showing similarities and dissimilarities between and within phenomenon, aiding clarity and connoting Concepts and arousing aesthetic reactions. Robinson (1972) however pointed out certain constraints in the use of colour. According to him, it is expensive to use and

delicate in nature, requiring special treatment and caution during usage. Lesh (1976) established the practical origin of dyeing in Nigeria. He is stated that the practice dates back to 1895.

On dyestuff, Brown (1999) stressed that dyeing with indigo was a legacy, with Nigerian craftsmen but that often, dyestuffs are also available.

Larson (1984) elucidated a similar option when he associated the indigo dye with the Nupes, the Tivs and the Yorubas. He had carried out an investigation to explore the possibility of extracting useful dyestuffs from local materials that abound in the lower Benue region of Nigeria.

### Materials and Methods

Bark of plants, leaves, fruits and roots were obtained from the eight species of plants earlier highlighted.

The materials used were nails, pots, wooden spoons, sodium hydroxide thread, calico cloth and smooth stones. Borehole water was used in all cases.

### Dye-extraction

**Gmelina arborea** fruits were squeezed into a beaker until one litre of juice was obtained. One hundred gm of kola nuts were pounded with pestle and mortar, and then 500ml of water was added and infused for 30 minutes. Twenty (20) gm of **Pteleopsis habeensis** and **Tectona grandis** leaves were separately pounded with 500ml of water and infuse for 30 minutes.

For **Azanza garekana**, 20g of fresh roots were pounded, after which 500ml of water was added and infused for 30 minutes. Twenty (20)g of bark of **Prosopis africana**.

**Lamea humilis** were separately pounded with addition of 500ml of water and were infused for 30 minutes.

In each case, the juice was drained, using fine sieve and muslin cloth. The juice obtained was then set aside as dyestuff.

### Dyeing Process

The various dyestuffs were heated gently to boiling point. Five (5)g of Sodium Hydroxide was added in each case to serve as a fixing agent. Yards of calico were obtained and cut into various sizes for each of the dyestuffs. In order to obtain various designs, the calico fabrics were given the following treatment; pleating, folding, squeezing and tying, with smooth stones inserted. After these treatments, the materials were immersed in their various mixtures for twenty minutes, stirring occasionally with the wooden spoons. (The wooden spoon is made of plants from where each dye was made.) The dyed fabrics were taken out of the boiling mixture, untied, washed and allowed to air-dry.

**Table 1** Dye extraction

S/N	Raw Materials	Extraction Method
1.	P.Habeensis	Leaf pounding
2.	K .nitida	Fruit pounding
3.	G arborea	Fruit squeezing
4.	P. africana	Bark pounding
5.	K, .senegalensis	Bark pounding
6.	A. garckeana	Root pounding
7.	T. grandis	Leaf pounding
	L.humilis	Bark pounding

**Source:** Laboratory Analysis 2006

## Result and Discussion

**Table 2:** Colour produced from the various local raw materials used

S/N	Raw material	Colour on fabric
1.	P. Habeensis	Peach
2.	K. nitida	Orange
3.	G. aborea	Light-grey
4.	P. africana	Yellow
5.	T. grandis	Deep-pine
6.	K. senegalensis	Pine
7.	A. garckeana	Grey
8.	L. humilis	Grey
9.	P. habeensis +K.nitida	Ivory

**Source:** Laboratory Analysis 2006.

Table 1 shows the various methods used for dye extraction while Table 2 shows the various dyestuffs obtained from various local materials. This indicates that the dyestuffs are capable of producing attractive colours on calico fabrics. This fact makes the study quite relevant so that the acquisition and use of local dyes could be further enhanced and encouraged with the aim of helping to satisfy people's desires for a more durable colour designs on their fabrics.

This work would be a basic framework in the investigation of the best time or season in which maximum extract would be realizable from the plants.

## References

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